spatial change in a system since the last measurement was taken and $T(n)$ is a random variable representing the measured time since the last measurement was taken.

Using the theory of algebraic representations of discrete time stochastic processes in Johnson [1, 2, 3], we describe: (1) how to estimate the algebraic representation of the general space-time stochastic process from a sample $X(1)$, $T(1), \ldots,$ $X(n)$, $T(n)$, (2) how to use the estimated algebraic representation to compute the behavior of the system when the times between observations happen to be so small that the system was effectively observed continuously, (3) how space-time models allow for the act of observing the system to affect the system itself and (4) the close relationship between space-time stochastic processes and quantum stochastic processes.

References

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Shape Measures for Random Triangles with Vertices I.I.D.-Uniform in Convex Polygons

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The problem of getting explicit forms for such measures has been an open one for the last ten years, even in the simplest cases when the convex polygon is a square or a triangle.

A careful study of the geometry of the set of singularities has now made possible a completely general solution and an outline of this will be presented.

An Existence Theorem for Measures on Partially Ordered Sets, with Applications to Random Set Theory

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We state conditions on a partially ordered set L and a mapping λ defined on a class $\mathscr{F}_C$ of filters on L, under which the latter extends to a measure on the minimal σ-field over $\mathscr{F}_c$. By applying this extension result to the case when L is a continuous lattice with a second countable Scott topology, we obtain a characterization of the probability measures on L. The correspondence on the line between probability measures and distribution functions is a special case of this characterization. Another special case is a variant of Choquet's existence theorem for distributions of random closed sets in locally compact second countable Hausdorff spaces S. Our approach to this result shows that it holds as soon as the topology of S is continuous and second countable. We also obtain characterizations of the distributions of all random compact and all random compact convex subsets in R^d for finite d.

Some Properties of Westcott's Functional

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For random measures on locally compact spaces the so-called Laplace functional is the appropriate generalization of the classical Laplace transform. These functionals may be characterized by positive definiteness and a weak continuity property. A certain sharper version of positive definiteness will be shown to single out the Westcott's functionals, i.e. the Laplace functionals of joint processes. A stronger continuity requirement characterizes finitary point processes.

Subordination of Stationary Processes

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Let $X=\{X(t), t\in T\subset\mathbb{R}\}$ be a stationary process and suppose that $N=\{N(t), t\geq 0\}$ is an infinitely divisible process, independent of X. Then the process $\hat{X}:=\{\hat{X}(t)=X(N(t)), t\geq 0\}$ is called subordinated to X (or derived from X) with subordinator N. We show that $\hat{X}$ is again a stationary process and we relate the spectral properties of X and $\hat{X}$ by comparing their spectral measures. We obtain among others that if X is stochastically continuous

$$\hat{f}(x)=\frac{1}{\pi}\int_{-\infty}^{\infty}\frac{\operatorname{Re}\varphi(u)}{(\operatorname{Re}\varphi(u))^2+(x+\operatorname{Im}\varphi(u))^2}f(u)\,\mathrm{d}u,\quad -\infty<x<\infty.$$

Here f and $\hat{f}$ are the resp. spectra of X and $\hat{X}$ and $\varphi(u)=-\log E(\mathrm{e}^{\mathrm{i}uN(1)})$. We also discuss the possibility of a derived stationary process to model time series in random time domains and give several examples.

2.9. GSMPS's *and insensitivity*

Insensitivity with Interruptions

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The theory of insensitivity within Generalised Semi-Markov Schemes is extended to cover classes of models in which the generally distributed lifetimes can be terminated prematurely by the deaths of negative exponentially distributed lifetimes. As a consequence of this approach it is shown that there exists classes of processes